

# Neighborhood Deprivation and Evictions in Chicago

## Team Members

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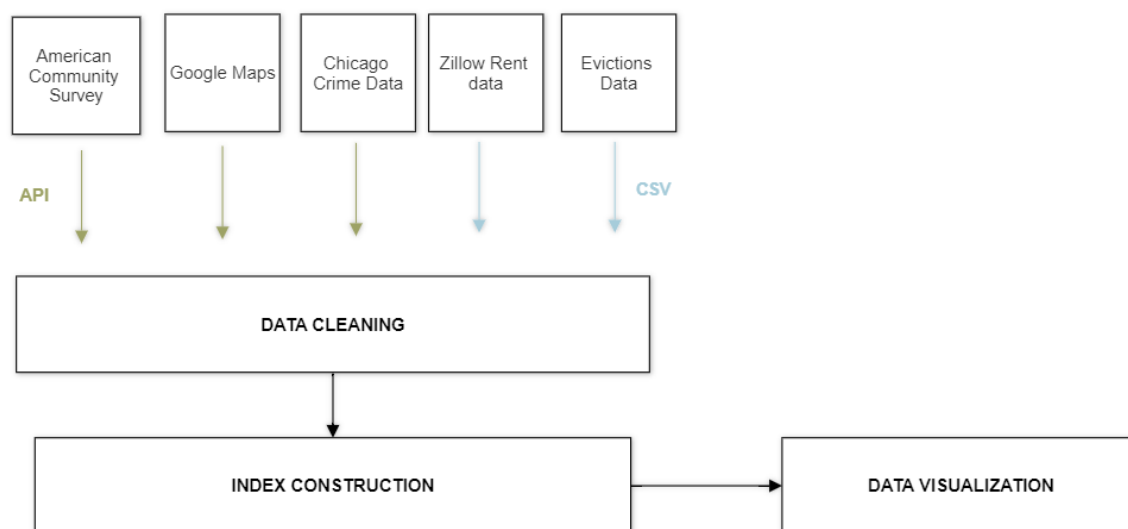
## Project Abstract

Evictions are very impactful events, but their relationship with other factors in people's lives would benefit from further research. This project looks to understand further the neighborhood characteristics associated with eviction in the city of Chicago. Using policing data, rental costs, median income, and distance calculations we construct an index to measure neighborhood deprivation, using a similar approach as the Multi-dimensional poverty index. The resulting maps and analyses show that evictions are highly correlated with the deprivation index we create .

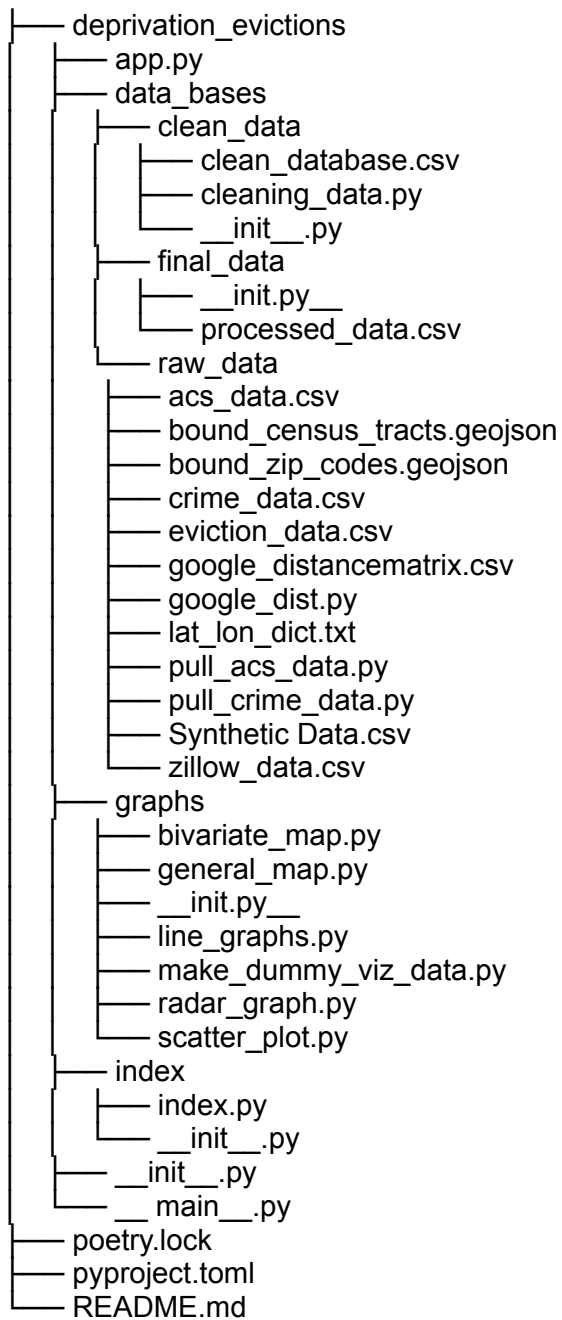
Specifically, we make a correlational map of evictions and the constructed deprivation index, as well as graphs 1) correlating the index and the individual indicators which compose it with eviction and 2) comparing zip codes in the city of Chicago to the city average across these indicators.

## Overall structure of the software

### Data Flow Diagram



## Project Folder Structure



### Code responsibilities for each member

Team member	Topic	Task	Files
Santiago	Data pulling	- Accessed Zillow rent data by zip code	<ul style="list-style-type: none"> <li>data_bases/raw_data/zillow_data.csv</li> </ul>
	Data cleaning	- Created a function that cleaned all the data from the 5 sources and merged it into one final file - Customized specific metrics to suit the needs of visualizations more effectively	<ul style="list-style-type: none"> <li>data_bases/clean_data/cleaning_data.py</li> <li>data_bases/clean_data/clean_database.csv</li> </ul>
Gregory	Data pulling	- Accessed evictions data by zip code - Created a function to pull transport data from Google Distance Matrix API	<ul style="list-style-type: none"> <li>data_bases/raw_data/eviction_data.csv</li> <li>data_bases/raw_data/google_dist.py</li> <li>data_bases/raw_data/google_distancematrix.csv</li> </ul>
	Index construction	- Created a class with multiple methods to construct the Deprivation Index	<ul style="list-style-type: none"> <li>index/index.py</li> <li>data_bases/final_data/processed_data.csv</li> </ul>
Stephania	Data pulling	- Created a function to pull and filter the American Community Survey data from 2019 using the API interaction of the censusdata package	<ul style="list-style-type: none"> <li>data_bases/raw_data/pull_acs_data.py</li> </ul>
	Data visualization	- Created two geospatial (univariate and bivariate) visualizations of the Deprivation Index and Evictions per capita in Chicago - Using Dash, created a web page structure to display all the visualization from the project	<ul style="list-style-type: none"> <li>app.py</li> <li>graphs/general_map.py</li> <li>graphs/bivariate_map.py</li> </ul>
Andrew	Data pulling	- Created a function to pull Chicago Crime data from 2019 through its API	<ul style="list-style-type: none"> <li>data_bases/raw_data/pull_crime_data.py</li> </ul>
	Data visualization	- Created a radar graph with dynamic updating that compares by zip code the variables of the index with the city average	<ul style="list-style-type: none"> <li>app.py</li> <li>graphs/scatter_plot.py</li> <li>graphs/radar_graph.py</li> </ul>

		<ul style="list-style-type: none"> <li>- Created a scatter plot with dynamic updating that shows the relationship between evictions per capita and the variables of the index</li> <li>- Using Dash, created a web page structure to display all the visualization from the project</li> </ul>	
Team Effort	Virtual Environment	- Generated the poetry virtual environment	<ul style="list-style-type: none"> <li>• pyproject.toml</li> <li>• poetry.lock</li> </ul>

### Short guide on how to interact with the application and what it produces

The application produces a dashboard of data visualizations which summarize our correlational analysis of a deprivation index and evictions in the city of Chicago.

To run this application you need to follow these steps:

1. Clone the repository
2. Navigate to the repository: `cd ./30122-project-apwhy`
3. Install Poetry: `poetry install`
4. Activate the virtual environment in poetry: `poetry shell`
5. [OPTIONAL] Clean the data: `python3 -m deprivation_evictions.data_bases.clean_data.cleaning_data`
6. Launch the Application: `python3 -m deprivation_evictions`

The application produces a local url. By pasting that url in a web browser, one can interact with the visualizations in an interactive dashboard.

### What the project tried to accomplish and what it actually accomplished

This project accomplished its goals. We set out to understand the connection between evictions and socioeconomic factors in Chicago, and we were successful in doing so. Accessing as many data sources as possible via API made the data collection process fairly straightforward. Cleaning the data, constructing the deprivation index, and determining the best visualizations took more time. We tested multiple versions of scaling of the indicators, as well as determining appropriate index weightages before arriving on the final version, which were normalized but not scaled to per capita population. Ultimately, we were successful in completing the analysis we intended.